

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:  
MICHAEL J. MALLIE  
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, LLP  
12400 WILSHIRE BOULEVARD  
7TH FLOOR  
LOS ANGELES, CA 90025-1026

**ENTERED**

**27 2004**

**STATUS DB-LA**

**PCT**

**WRITTEN OPINION**

**(PCT Rule 66)**

Date of Mailing  
(day/month/year)

REPLY DUE

within 2 months/days from  
the above date of mailing

Applicant's or agent's file reference

P10038PCT

International application No.

PCT/US02/04217

International filing date (day/month/year)

11 February 2002 (11.02.2002)

Priority date (day/month/year)

13 March 2001 (13.03.2001)

International Patent Classification (IPC) or both national classification and IPC

IPC(7): G90G 3/36 and US Cl.: 345/87, 88, 89, 690, 691, 694

Applicant

INTEL CORPORATION

1. This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2 (a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

**When?**

See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension. See rule 66.2(d).~~

**How?**

By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

**Also**

For an additional opportunity to submit amendments, see Rule 66.4.  
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.  
For an informal communication with the examiner, see Rule 66.6

**If no reply is filed**, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary

examination report must be established according to Rule 69.2 is: 13 July 2003 (13.07.2003).

Name and mailing address of the IPEA/US

Mail Stop PCT, Attn: IPEA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703)305-3230

Authorized officer

Kent Chang

Telephone No. (703)305-4824

Form PCT/IPEA/408 (cover sheet)(July 1998)

# PATENT COOPERATION TREATY

From the

INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

MICHAEL J. MALLIE  
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, LLP  
12400 WILSHIRE BOULEVARD  
7TH FLOOR  
LOS ANGELES, CA 90025-1026

## PCT

### WRITTEN OPINION

(PCT Rule 66)

Applicant's or agent's file reference		Date of Mailing (day/month/year) <b>21 JUL 2004</b>
P10038PCT		REPLY DUE within 2 months/days from the above date of mailing
International application No. PCT/US02/04217	International filing date (day/month/year) 11 February 2002 (11.02.2002)	Priority date (day/month/year) 13 March 2001 (13.03.2001)
International Patent Classification (IPC) or both national classification and IPC IPC(7): G90G 3/36 and US Cl.: 345/87, 88, 89, 690, 691, 694		
Applicant INTEL CORPORATION		

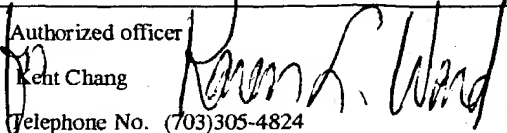
1. This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items:
  - I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☒ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2 (a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☒ Certain observations on the international application
3. The applicant is hereby **invited to reply** to this opinion.
 

**When?** See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension. See rule 66.2(d).~~

**How?** By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

**Also** For an additional opportunity to submit amendments, see Rule 66.4.  
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.  
For an informal communication with the examiner, see Rule 66.6

**If no reply is filed,** the international preliminary examination report will be established on the basis of this opinion.
4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 13 July 2003 (13.07.2003).

Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer  Kent Chang Telephone No. (703)305-4824
--	---

**I. Basis of the opinion****1. With regard to the elements of the international application:\***

- ☒ the international application as originally filed
- ☒ the description:  
pages 1-9, as originally filed  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.
- ☒ the claims:  
pages 10-14, as originally filed  
pages NONE, as amended (together with any statement) under Article 19  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.
- ☒ the drawings:  
pages 1-4, as originally filed  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.
- ☐ the sequence listing part of the description:  
pages NONE, as originally filed  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:**

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**4. ☐ The amendments have resulted in the cancellation of:**

- ☐ the description, pages NONE
- ☐ the claims, Nos. NONE
- ☐ the drawings, sheets/fig NONE

**5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed."

WRITTEN OPINION

International application No.

PCT/US02/04217

**IV. Lack of unity of invention**

1. In response to the invitation (Form PCT/IPEA/405) to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.  
☐ paid additional fees.  
☐ paid additional fees under protest.  
☒ neither restricted nor paid additional fees.

2. This Authority found that the requirement of unity of invention is not complied with for the following reasons and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees:

3. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this opinion:

- ☐ all parts.  
☒ the parts relating to claims Nos. 1-15.

**WRITTEN OPINION**

International application No.  
PCT/US02/04217

**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. STATEMENT**

Novelty (N)	Claims <u>2-6,8-11 and 13-15</u>	YES
	Claims <u>1,7,12</u>	NO
Inventive Step (IS)	Claims <u>2-5</u>	YES
	Claims <u>1,6-15</u>	NO
Industrial Applicability (IA)	Claims <u>1-15</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

Claims 1 and 7 lack novelty under PCT Article 33(2) as being anticipated by Denda.

Denda teaches intensity control by converting one dot into plural picture elements and further modifying the weights of the subfields via error diffusion.

Claim 12 lacks novelty under PCT Article 33(2) as being anticipated by Jacobson.

Jacobson teaches a grayscale display by actuating a first subpixel with a capacitor with a long pulse of low-intensity light and actuating the first subpixel and a second subpixel lacking a capacitor with a long pulse of high-intensity light.

Claims 1, 6-15 lack an inventive step under PCT Article 33(3) as being obvious over Denda.

Denda teaches intensity control by converting one dot into picture picture elements and further modifying the weights of the subfields via error diffusion. Denda also teaches as weights changes via error diffusion thus effecting various possible combinations of pulse widths. it would have been obvious to generate pulse widths corresponding to the subpixels so as to generate fine grayscale display.

Claims 7-15 lack an inventive step under PCT Article 33(3) as being obvious over Jacobson in view of Hughes and Green.

Jacobson teaches a grayscale display by actuating a first subpixel with a capacitor with a long pulse of low-intensity light and actuating the first subpixel and a second subpixel lacking a capacitor with a long pulse of high-intensity light. Hughes teaches combining temporal dither with spatial weighting and that each subpixel can be addressed with different level of grayscale. Green teaches that subpixels can be arranged in a concentric manner. Therefore, it would have been obvious to incorporate Hughes' and Green's features into Jacobson so as to provide a fine grayscale display with high luminance.

Claims 2-5 meet the criteria set out in PCT Article 33(2)-(4), because the prior arts do not teach or fairly suggest the specific combination of subpixels light outputs with pulse widths in grayscale tones.

**NEW CITATIONS**

US 6,445,489 B1 (JACOBSON et al.) 03 September 2002, see column 8, line 16 through column 9, line 12.

US 5,905,482 A (HUGHES et al.) 18 May 1999, see abstract, column 2, lines 16-23, column 3, lines 55-60, column 4, lines 28-30, and column 11, lines 30-62.

US 5,124,695 A (GREEN) 23 June 1992, see column 1, lines 24-41.

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

In claim 1, limitations "2N" in line 1, "2S" in line 3 and "2N-S" in line 7 are indefinite because the properties and ranges of S and N are not defined.

In claim 2, limitation "2S/N" in line 3 is indefinite because the applicant is defining a fraction value, which needs to be defined as a fraction of a period or a waveform. Further, it appears the form "2S/N" is a typo and should actually be "2S/2N" or the value would be bigger than 1 in certain instances.

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

**TIME LIMIT:**

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.